Disclaimer:

This executable program is experimental and for non-commercial use only. No warranty is provided or implied.

Purpose:

For reproducing the results for robust pseudo random fields (RPRF), which includes light-field stereo matching with hard-EM energy (in C++) and empirical model fitting with soft-EM energy (in MATLAB).

File description:

in/:	Input directory for source light fields
in/stillLife_lf_3x3/:	3x3 test case (9 views) for scene *StillLife*
in/lf_structure.txt:	File structure description for input light fields
myMATLAB_lib.dll:	Dynamic-link library for model fitting (**MATLAB R2017a**)
install_MCR.txt:	MCR installation instruction for using myMATLAB_lib.dll
opencv_core248.dll:	Dynamic-link library for OpenCV 2.4
opencv_highgui248.dll:	Dynamic-link library for OpenCV 2.4
rprf.exe:	Executable program for stereo matching (VS 2012, 64-bit)
run_demo.bat:	Batch file for running demo (MS-DOS command line)

(The following files to be generated by run_demo.bat)

stillLife_lf_3x3/:	Disparity maps from 3x3 views with color pixels
stillLife_lf_3x3(+)/:	Disparity maps from five crosshair views with color pixels
stillLife_lf_3x3(+)_luma/:	Disparity maps from five crosshair views with grey-scale pixels
log.csv:	Log file with detailed numbers

Note: disp_iter1.png is the updated disparity map after one-iteration parameter estimation. Its grey-scale values range from 0 to 255 and follow this normalized formulation:

$$\text{Pixel Value} = 255 \times \frac{\text{Estimated Disparity} - \text{Minimum Disparity}}{\text{Maximum Disparity} - \text{Minimum Disparity}}.$$

Usage:

Run run_demo.bat to generate depth for scene *StillLife* in three different configurations: 3x3 views with color pixels, five crosshair views with color pixels, and five crosshair views with grey-scale pixels.

Run "rprf.exe –help" to see detailed definition of input arguments.

Note: MATLAB Compiler Runtime (MCR) installation is required.

Related papers:

[1] C.-T. Huang, "Robust Pseudo Random Fields for Light-Field Stereo Matching," in *IEEE Conference on Computer Vision (ICCV)*, 2017.

[2] C.-T. Huang, "Empirical Bayesian Light-Field Stereo Matching by Robust Pseudo Random Field Modeling," Submitted full-paper draft.

For any question, please contact the author via chaotsung@ee.nthu.edu.tw.

We thank you for your interest in this work.

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